

### **REMARKS**

The Applicants thank the Examiner for the careful consideration of this application. The Office Action dated March 16, 2011 has been received and its contents carefully considered. Claims 1-22 and 25-26 are currently pending in this application. Claims 1 and 17 are amended. Support for the amendments is found throughout the specification, for example, in Figures 1, 3, and 5, and descriptions thereof on pages 8-13. Based on the foregoing amendments and the following remarks, the Applicants respectfully request that the Examiner reconsider all outstanding rejections and that they be withdrawn.

#### **Claim Rejection – 35 U.S.C. § 103**

(1) On pages 2-5, the Office Action rejects claims 1-2, 6-7, 9-11, 16, and 25 under 35 U.S.C. § 103(a) as allegedly obvious with respect to Kampherbeek et al. (U.S. 2003/0178583) in view of Saito et al. (U.S. 6,267,637). Applicants respectfully traverse.

As to claim 1, Kampherbeek et al. in combination with Saito et al. does not teach or reasonably disclose all the features of claim 1. Kampherbeek et al. does not describe a device having an "electroluminescent junction" that "generates light at the electroluminescent junction by electroluminescence" as required by amended claim 1. Kampherbeek et al. describes an electron emitting device having a quartz substrate 17(1), a fluorescent layer 17(2) and an electron emitting p-type semiconductor 16 (see, Kampherbeek et al., Figure 11 and paragraphs [0087]-[0093]). It appears the Office Action aligns the interface between the p-type semiconductor 16 and fluorescent layer 17(2) with the claimed junction. However, the interface between the p-type semiconductor 16 and fluorescent layer 17(2) is not an electroluminescent junction and does not generate light by electroluminescence, as claimed. Rather, the fluorescent layer 17(2) receives light in the W range, and converts the received UV photons into photons with larger wavelengths and less energy, for instance in the infrared range (see Kampherbeek et al., paragraph [0088]). Fluorescent layer 17(2) generates light by photoluminescence, not electroluminescence, so the junction is not "an electroluminescent junction" that generates light "by electroluminescence," as required by claim 1. For this reason, Kampherbeek et al. does not disclose all the elements of claim 1. Saito et al. does not

cure the deficiencies of Kampherbeek et al. because Saito et al. does not describe an electroluminescent junction. Applicants respectfully request the rejection be withdrawn.

Claims 2, 6-7, 9-11, 16 and 25 all depend, directly or indirectly from claim 1, and are allowable for at least the same reasons as claim 1.

(2) On pages 5-6, the Office Action rejects claims 17, 18 and 26 under 35 U.S.C. § 103(a) as allegedly obvious based on Saito et al. (U.S. 6,267,637) in view of Kampherbeek et al. (U.S. 2003/0178583). Applicants respectfully traverse.

As to independent claim 17, Kampherbeek et al. and Saito et al. do not teach or reasonably suggest all the features of claim 17 for at least the reasons set forth above for claim 1. In particular, claim 17 recites "the light emitting device generates light at the electroluminescent junction by electroluminescence." Applicants respectfully request the rejection be withdrawn.

Claims 18 and 26 depend from claim 17, and are allowable for at least the same reasons as claim 17. Applicants respectfully request the rejections be withdrawn.

(3) On pages 6-9, the Office Action rejects claims 3-5, 8-15, and 20-22 under 35 U.S.C. § 103(a) as allegedly obvious with respect to Kampherbeek et al. (U.S. 2003/0178583) in view of Saito et al. (U.S. 6,267,637), and further in view of Hirabayashi (U.S. 5,541,423). Applicants respectfully traverse.

First, claims 3-5, 8-15, and 20-22 depend, directly or indirectly from claim 1, and are allowable for at least the same reasons as claim 1 because Hirabayashi does not cure the deficiencies of Kampherbeek et al. and Saito et al.

Second, solely to further prosecution, the Applicant submits that claim 8 is patentable over Kampherbeek et al., Saito et al., and Hirabayashi et al. for at least the following additional reason. The Office Action asserts that one of ordinary skill would use the diamond semiconductors described by Hirabayashi for the purpose of providing a pn junction diamond semiconductor, in

the device of Kampherbeek et al., as modified by Saito et al. The Applicant disagrees. One of ordinary skill would have no reason to combine Hirabayashi with Kampherbeek et al. and Saito et al., because they have different functions and different mechanisms. Hirabayashi describes devices that emit light by electron-hole recombination at a pn junction of diamond (See Hirabayashi et al., abstract). Kampherbeek et al. describes a device that emits electrons where an electron emitting electrode is coupled to a fluorescent layer where the fluorescent layer is irradiated by an external light source (See Kampherbeek et al., Fig. 4, and Fig. 11, paragraphs [0060] and [0088]). Saito et al. is relied upon to show the use of diamond electron emitting materials (see Saito et al., abstract). There is no reason to believe that the structures described by Hirabayashi emit electrons, and no reason to combine Hirabayashi with Kampherbeek et al. and Saito et al. Applicant requests the rejection be withdrawn.

(4) On page 9, the Office Action rejects claim 19 under 35 U.S.C. § 103(a) as allegedly obvious with respect to Kampherbeek et al. (U.S. 2003/0178583) in view of Saito et al. (U.S. 6,267,637), and further in view of Xie et al. (U.S. 6,204,597). Applicants respectfully traverse.

Claim 19 is dependent from claim 17, and is allowable for at least the same reasons as claim 17. Xie et al. does not cure the deficiencies of Kampherbeek et al. and Saito et al. Therefore, Applicants respectfully request the rejection be withdrawn.

### **Conclusion**

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is hereby invited to telephone the undersigned at the number provided.

The Commissioner is authorized to charge any deficiency in any patent application processing fees pursuant to 37 CFR § 1.17, including extension of time fees pursuant to 37 CFR § 1.17(a)-(d), associated with this communication and to credit any excess payment to Deposit Account No. 22-0261.

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